

Remarks

This is in response to the Office Action mailed on June 9, 2003. A substitute specification has been included herewith. Claim 1 has been amended, support for the amendments being found, for example, at Figures 3-5 of the present application. No new matter has been added. Reconsideration and allowance are respectfully requested.

The specification was objected to because the facsimile copy of the specification was illegible for printing. A substitute specification, in accordance with 37 CFR 1.125(a), is included herewith that is sufficiently legible for printing. No new matter has been added. Removal of the objection is respectfully requested.

Claims 1-3 were rejected under 35 U.S.C. § 102(b) as being anticipated by Gardner, U.S. Patent No. 2,920,874. This rejection is respectfully traversed, to the extent it is maintained.

Claim 1 recites that each of the tubes is separately connected with the tube-sided supply and discharge means via connecting channels located in the plane of the tube plate and crossing the tube bores. Claim 1 further recites that the tube plate includes a flat body part with a number of the tube bores equal to a number of the tubes.

Gardner discloses a heat exchanger including a pressure vessel with a cylindrical shell and a nest of tubes extending through the shell. The cylindrical shell is provided with tube sheets 4 that are transversed by the tubes. Outside the pressure vessel, partition walls 5 and partition members 6 are provided, which form compartments being closed by means of cover plates 9 and 54, or a combination of diaphragm plates 38 and back-up plates 40. This so-called D-head configuration results in multiple supply-side and discharge-side bores opening in each compartment formed by partition walls 5 and 6 and cover plates 9 and 54. Such a configuration can be undesirable since the D-head must be very robust to withstand the possibly high forces generated. See, for example, page 2, lines 19-30 of the present application.

In contrast to Gardner, claim 1 recites that each of the tubes is separately connected with the tube-sided supply and discharge means via connecting channels located in the plane of the tube plate and crossing the tube bores. Therefore, unlike the compartments disclosed by Gardner, claim 1 recites connecting channels, and further recites that each of the tubes is separately connected with the tube-sided supply and discharge means by the connecting channels. For at least this reason, claim 1 and claims 2 and 3 that depend therefrom are allowable. Reconsideration and allowance are respectfully requested.

Claims 1 and 2 were rejected under section 102(b) as being anticipated by Vollhardt, U.S. Patent No. 3,229,762. This rejection is respectfully traversed, to the extent it is maintained.

Vollhardt discloses a heat exchanger with a first medium flowing through a pressure vessel 2 and a second medium flowing through tubes 3. The pressure vessel 2 is closed off on either side by means of block-shaped forgings 4 with projections through which are provided pipe borings in a direction perpendicular to the plane of the forgings. The tubes 3 are mounted to the pipe borings of the projections. Because the forgings 4 used in Vollhardt permit only a limited number of tubes in the pressure vessel due to the welding process of the tubes into the borings of the projections, each tube is split into two tube portions as it extends from the projections of the forgings. See Figure 1 of Vollhardt. This split of the tubing results in greater expense in the manufacture of the heat exchanger of Vollhardt.

In contrast to that disclosed in Vollhardt, claim 1 recites that the tube plate includes a flat body part with a number of the tube bores equal to a number of the tubes. Vollhardt does not suggest that the number of tube bores equal the number of tubes as recited in claim 1, since Vollhardt discloses only one-half the number bores (or twice the number of tubes) because the tubes in Vollhardt are split as noted above. For at least these reasons, Vollhardt fails to anticipate claim 1, as well as claim 2 that depends therefrom. Reconsideration and allowance are respectfully requested.

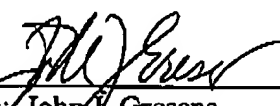
Claims 3 and 4 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Gardner or Vollhardt in view of Kessler, U.S. Patent No. 1,621,742. This rejection is respectfully traversed.

Claims 3 and 4 depend from claim 1. Neither Gardner nor Vollhardt disclose all of the limitations of claim 1 for at least the reasons stated above. Kessler is cited solely for disclosing detachable plugs, a characterization that is not disputed for the purpose of this Amendment. However, the addition of Kessler fails to remedy the shortcomings of Gardner and Vollhardt. Therefore, claims 3 and 4 should be allowable for at least the same reasons that claim 1 is allowable. Reconsideration and allowance of claims 3 and 4 are respectfully requested.

In view of the above amendments and remarks, claims 1-4 are now in condition for allowance. Favorable reconsideration in the form of a Notice of Allowance is respectfully requested. The Examiner is encouraged to contact the undersigned attorney with any questions regarding this application.

Respectfully submitted,  
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